Supplementary Table 1 – Design of Online Survey and Consensus Meeting

Survey Design

The first stage of the Nominal Group Technique (NGT) process was an online survey for Community First Response (CFR) stakeholders, including clinicians, researchers, and CFR volunteers. The survey was created using Microsoft Forms. It was designed by the research team in partnership with the Patient and Public Involvement (PPI) panel for this project. The research team included researchers from the National Ambulance Service and the National University of Ireland (NUI) Galway who had expertise in healthcare research, including prehospital care research and survey research. The PPI panel comprised three CFR volunteers, including lay and professional volunteers. They were consulted in a meeting and via email to ensure that the instructions and questions were written in plain English and suitable for a lay audience. They also ensured that the questions, particularly the demographic questions, were not off-putting or intrusive.

Survey Pilot Testing

A pilot survey was distributed to the three CFRs from the PPI panel, a clinician with expertise in CFR, and two researchers with expertise in healthcare research, including using the NGT/online surveys. The research team examined their responses to ensure that the instructions and questions were understood and interpreted as intended. The pilot survey contained an open-ended question to gather feedback on the survey itself, including any problems with its clarity, length, layout, and functionality. Minimal amendments were advised.

Consensus Meeting Design

The second stage of the NGT process was a consensus meeting comprising group discussions and voting sessions amongst CFR stakeholders. NGT meetings are most commonly conducted in face-to-face settings. However, the COVID-19 pandemic meant that the consensus meeting in the current study was conducted virtually via Zoom. To design the materials and procedure of the meeting, the research team consulted:

1) Colleagues from the Outcome Measures in Rheumatoid Arthritis Clinical Trials (OMERACT) international network, who are leading international experts in core outcome set development, and who had expertise in conducting online consensus processes.

2) A researcher from the Manchester Centre for Health Psychology in the University of Manchester, who had recently conducted an online NGT process.

3) Colleagues from PPI Ignite in NUI Galway, who had experience of conducting virtual events and conferences with stakeholders, including patients and the public.

Consensus Meeting Pilot Testing

The research team and a technical support specialist held a pilot session prior to the meeting to identify and resolve any issues, such as technical or timing problems. The participants/stakeholders were provided with an infographic and written instructions for accessing and using Zoom. They were also offered a short practice Zoom meeting with a member of the research team, if required, in advance of the consensus meeting. None availed of this offer.

Supplementary Table 2 – Nominal Group Technique Meeting Timeline

Meeting Activity	Virtual Room	Approximate Duration
Arrival and welcome	Lobby	15 minutes
Introduction, including presentation by research team	Main room	15 minutes
Small group discussions – Introduction	Break-out rooms	10 minutes
Small group discussions – Topic 1 discussion	Break-out rooms	20 minutes
Break	-	5 minutes
Small group discussions – Topic 2 discussion	Break-out rooms	20 minutes
Break	-	10 minutes
Feedback – Topic 1	Main room	10 minutes
1st ranking – Topic 1	Main room	15 minutes
Discussion of 1st ranking results, followed by 2nd ranking	Main room	20 minutes
Break	Main room	10 minutes
Feedback – Topic 2	Main room	10 minutes
1st ranking – Topic 2	Main room	10 minutes
Discussion of 1st ranking results, followed by 2nd ranking	Main room	15 minutes
Close of meeting, including distribution of feedback form	Main room	15 minutes

Supplementary Table 3 – Collated Survey Results for Topic 1

What are the most important data to record and analyse related to Community First Response (CFR)?

Index	Suggestion	Rank	Score	Top 10 Votes (%)
1	What was the response time of the CFR volunteer?	1	7.53	80.00
2	What interventions or activities did the CFR volunteer carry out at the scene?	2	4.93	73.33
3	What time was cardiopulmonary resuscitation (CPR) first initiated?	3	3.53	53.33
4	Who first initiated CPR?	4	2.60	60.00
5	Was the patient's initial rhythm shockable or non-shockable?	4	2.60	40.00
6	Who performed CPR at the scene (e.g. bystanders, CFR volunteers)?	6	2.33	46.67
7	What time did the cardiac arrest or other emergency occur?	7	2.20	33.33
8	What mental or physical effects does being part of a CFR scheme have on its members?	8	2.13	33.33
9	How much time elapsed between the emergency occurring and the emergency services being called?	9	2.07	33.33
10	Did the CFR volunteer use an Automated External Defibrillator (AED) to deliver a shock to the patient?	9	2.07	40.00
11	What was the response time of the ambulance service?	11	2.00	26.67
12	Was the emergency as described when the CFR volunteer arrived at the scene?	12	1.73	33.33
13	Did the CFR volunteer apply AED pads to the patient?	13	1.40	33.33
14	What was the outcome of the emergency?	13	1.40	26.67
15	Was Return of Spontaneous Circulation (ROSC) achieved?	13	1.40	26.67
16	Did the patient survive to discharge?	13	1.40	26.67
17	What were the patient outcomes that could be shared with the CFR volunteer, with permission from the patient/family?	13	1.40	33.33
18	What information was observed by the CFR volunteer on the scene?	18	1.27	33.33
19	Did the patient survive with good neurological outcomes?	18	1.27	33.33
20	What was the distance the CFR volunteer had to travel to the emergency?	18	1.27	26.67
21	If an AED was used, what was its serial number?	21	1.20	20.00
22	Did the CFR volunteer notify the emergency services that they were responding to the call?	22	1.13	26.67
23	Did the CFR volunteer provide information to the ambulance service that helped them to make decisions about allocating resources to the scene?	23	1.07	26.67
24	What was the response time of additional emergency services?	24	0.93	20.00
25	Was Critical Incident Stress Management or other follow-up support offered to the CFR volunteer?	25	0.80	13.33
26	What skills and/or qualifications do the CFR scheme members have?	26	0.73	20.00
27	What was the quality of the CPR performed?	27	0.60	13.33
28	Where are CFR schemes located in relation to the emergency services?	27	0.60	6.67

Index	Suggestion	Rank	Score	Top 10 Votes (%)
29	Where was ROSC achieved (e.g. at the scene, hospital)?	29	0.40	13.33
30	Why was the call not attended by a CFR volunteer?	30	0.33	20.00
31	How much time did the CFR volunteer spend volunteering?	31	0.27	6.67
32	How many calls did the CFR scheme attend?	32	0.20	6.67
33	How are CFR schemes received by patients and their families?	33	0.13	6.67
34	What mistakes were made by the CFR volunteer, if any?	34	0.07	6.67
35	How many resources were at the scene?	35	0.00	0.00
36	What were the details of the CFR volunteer who attended the emergency?	35	0.00	0.00
37	Does the geographical area have sufficient CFR volunteer representation or coverage?	35	0.00	0.00
38	How many volunteers are in the CFR scheme?	35	0.00	0.00
39	Is the CFR scheme gaining or losing members?	35	0.00	0.00

Supplementary Table 4 – Collated Survey Results for Topic 2

What are the most important uses of data related to CFR?

Index	Suggestion	Rank	Score	Top 10 Votes (%)
1	To provide feedback to CFR volunteers.	1	7.07	86.67
2	To increase bystander participation in resuscitation.	2	5.53	73.33
3	To provide evidence about the value of CFR schemes to key stakeholders (e.g. the public, ambulance service).	3	5.13	73.33
4	To accurately assess the contribution made by CFR volunteers.	4	3.93	73.33
5	To improve CFR training.	5	3.73	53.33
6	To encourage inter-operability and coordination for CFR schemes and emergency services.	6	3.53	66.67
7	To assess the impact of CFR schemes on patient outcomes.	7	3.40	66.67
8	To measure the effectiveness of CFR schemes.	8	3.20	46.67
9	To identify improvements that can be made to CFR schemes.	9	2.93	60.00
10	To determine the level of awareness and the training requirements related to out-of-hospital cardiac arrest (OHCA) in the community.	10	1.73	26.67
11	To obtain information about events on the scene prior to the arrival of the emergency services.	11	1.67	33.33
12	To improve the experience of CFR volunteers.	12	1.60	26.67
13	To identify locations that require new CFR schemes.	13	1.47	40.00
14	To determine the best way to promote CFR schemes in the community.	13	1.47	33.33
15	To provide an evidence base for CFR.	15	1.40	33.33
16	To learn from emergency calls with successful outcomes.	16	1.27	26.67
17	To amend procedures in order to increase survival from OHCA	16	1.27	40.00
18	To facilitate auditing and quality improvement.	16	1.27	33.33
19	To facilitate research.	19	1.20	40.00
20	To identify additional emergency calls or codes that would be appropriate for CFR schemes.	20	1.07	20.00
21	To assess whether the size of the area covered by the CFR scheme is appropriate.	21	0.47	13.33
22	To improve CFR infrastructure.	22	0.27	13.33
23	To provide CFR volunteers with appropriate equipment and/or transport.	23	0.20	6.67
24	To facilitate resource planning.	24	0.13	6.67
25	To justify community support given to CFR schemes.	25	0.07	6.67
26	To assess CFR schemes in order to improve response times.	26	0.00	0.00
27	To confirm that there is a need for existing CFR schemes.	26	0.00	0.00

Supplementary Table 5 – Collated Survey Results for Topic 3

What would encourage or help people to collect and/or use data related to CFR?

Index	Suggestion
1	Ensuring that the role and importance of data collection and analysis are understood.
2	Showing how the data can be used for the development, planning, and improvement of the CFR service.
3	Using the data to provide a justification for the CFR service.
4	Using the data to provide supportive evidence when applying for funding.
5	Using the data to demonstrate that CFR benefits patients, such as highlighting any increases in the OHCA survival rate.
6	Increasing the awareness of the outcomes associated with early responses to emergencies, particularly CFR groups/schemes.
7	Using the data to enhance the visibility of CFR groups/schemes and to attract new members.
8	Using the data to provide better services for members of CFR groups/schemes.
9	Using the data to help maintain a safe environment for CFR volunteers.
10	Using the data to help the health service to determine how best to improve the CFR service.
11	Using the data to improve the links and communication with other first response practitioners (e.g. EMS personnel, local ambulance service managers).
12	Ensuring that data collection is as easy and simple as possible.
13	Collecting minimal, rather than excess, data.
14	Providing data collection forms/tools that are easy to complete (e.g. forms with closed-ended items, electronic forms).
15	Providing a CFR mobile phone application that enables volunteers to obtain, input, and share information (e.g. receiving and responding to emergency alerts, completing patient case reports).
16	Providing a mobile phone application that facilitates data entry shortly after the emergency, even in locations without an internet connection (e.g. on the scene), and that will update when connected to the internet (e.g. in the volunteer's home).
17	Providing relevant training and practice opportunities.
18	Providing clarification regarding the use, storage, accessibility, and security of the data, as well as regarding relevant regulations (e.g. freedom of information and data protection regulations).
19	Ensuring that the necessary equipment/technology (e.g. defibrillator download cables/software, CPR feedback sensors) are accessible.
20	Minimising any costs associated with data collection for CFR groups/schemes (e.g. defibrillator download software).
21	Having a designated person within each CFR group/scheme (e.g. the leader/coordinator) who is responsible for data collection.
22	Providing regular and relevant feedback to CFR groups/schemes, including data on their activities (e.g. response times, types of emergency calls).
23	Debriefing CFR volunteers and informing them of outcomes following an emergency.
24	Sharing and discussing the results of the data analysis, such as by providing annual reports and holding follow-meetings.

Supplementary Table 6 – Collated Survey Results for Topic 4

What would prevent people from collecting and/or using data related to CFR?

| Index	Suggestion
1	Other events at the scene, particularly patient care, being prioritised and valued above data collection.
2	The stressful and demanding nature of responding emergencies impeding data collection.
3	A perception that CFR volunteers do not need to collect data because the ambulance crew collect their own data.
4	A handover system for transferring data/forms from CFR volunteers to ambulance service staff that is not seamless.
5	Data collection and/or analysis being too complex and difficult.
6	Data collection and/or analysis being too time consuming, such as having data collection forms/tools that are too long and detailed and that are an addition to existing paperwork.
7	A lack of personnel/volunteers to carry out data collection and/or analysis.
8	CFR volunteers having other work or personal commitments to manage.
9	The results of the data analysis not being disseminated, including a lack of feedback for CFR volunteers.
10	The results of the data analysis not leading to changes in procedures or training.
11	A lack of relevant and adequate training.
12	A lack of understanding of the rationale, value, and purpose of data collection and analysis.
13	A lack of understanding of how data should be recorded and of the relevant regulations (e.g. data protection and freedom of information regulations).
14	Issues and concerns regarding confidentiality and data protection regulations, such as a General Data Protection Regulation (GDPR) breach.
15	Data collection and/or use resulting in inappropriate accountability.
16	CFR groups/schemes fearing that the data will lead to negative consequences or negative perceptions (e.g. they are found to be underperforming, to have taken too long get to the scene, to have made errors).
17	CFR groups/schemes not wanting to have their activities reviewed by peers from other CFR groups/schemes.
18	CFR groups/schemes feeling anxious about being compared to other CFR groups/schemes.
19	CFR volunteers feeling uncomfortable about collecting data, including feeling concerned about the improper sharing and use of data about themselves and others.
20	A lack of privacy (e.g. a mobile phone application for data collection that tracks their location).
21	A lack of effort on the part of the leaders/coordinators of CFR groups/schemes.
22	Incomplete or unavailable data/forms about the emergency event impeding data analysis and use.
23	A CFR group/scheme receiving a small number of calls or having few active members.

Supplementary Table 7 – Collated Survey Results for Topic 5

**What would be the best indicators that improvements to the collection
and use of data related to CFR have been made?**

Index	Suggestion
1	An overall improvement in the CFR service.
2	Improved patient outcomes, including increased survival rates.
3	Increased satisfaction amongst CFR volunteers.
4	Greater numbers of CFR volunteers recruited.
5	Greater awareness of CFR groups/schemes amongst the public, communities, and the ambulance service.
6	Greater appreciation of the CFR service and of the work and commitment of CFR volunteers.
7	Positive feedback from CFR volunteers, particularly feedback that the data collection process is user-friendly and that they feel confident and competent in carrying out this process.
8	Feedback from CFR volunteers that they value data collection.
9	Increased rates of CFR volunteers completing data collection.
10	Improved data quality and accuracy.
11	Enhanced data comprehensiveness and volume, including the capture of data that were not previously captured (e.g. data about defibrillator use).
12	The systematic and structured recording of precise information about events at the scene, including the presence of CFR volunteers, the use of public access defibrillators, and the individuals who performed CPR.
13	A simple system, portal, or application that CFR volunteers can use to submit data.
14	The ambulance service have the ability to determine whether CFR volunteers are responding in accordance with policy.
15	Collection of data on a more immediate basis.
16	Increased availability and publication of the data.
17	Availability of data from national and local levels.
18	Availability of data required for audit, research, and service planning.
19	Data are shared with all relevant stakeholders (e.g. CFR volunteers, CFR engagement officers from the ambulance service) on a regular basis to facilitate learning, such as real-time progress reports.
20	An annual report dedicated to or featuring CFR and OHCA data.
21	CFR volunteer training is amended based on the data.
22	CFR service planning is based, or partially based, on the data.
23	Identification of areas requiring improvement or amendment.
24	Ability to show that improvements have occurred.

Supplementary Figure 1 – Participant Ratings of the Top Ten Priorities

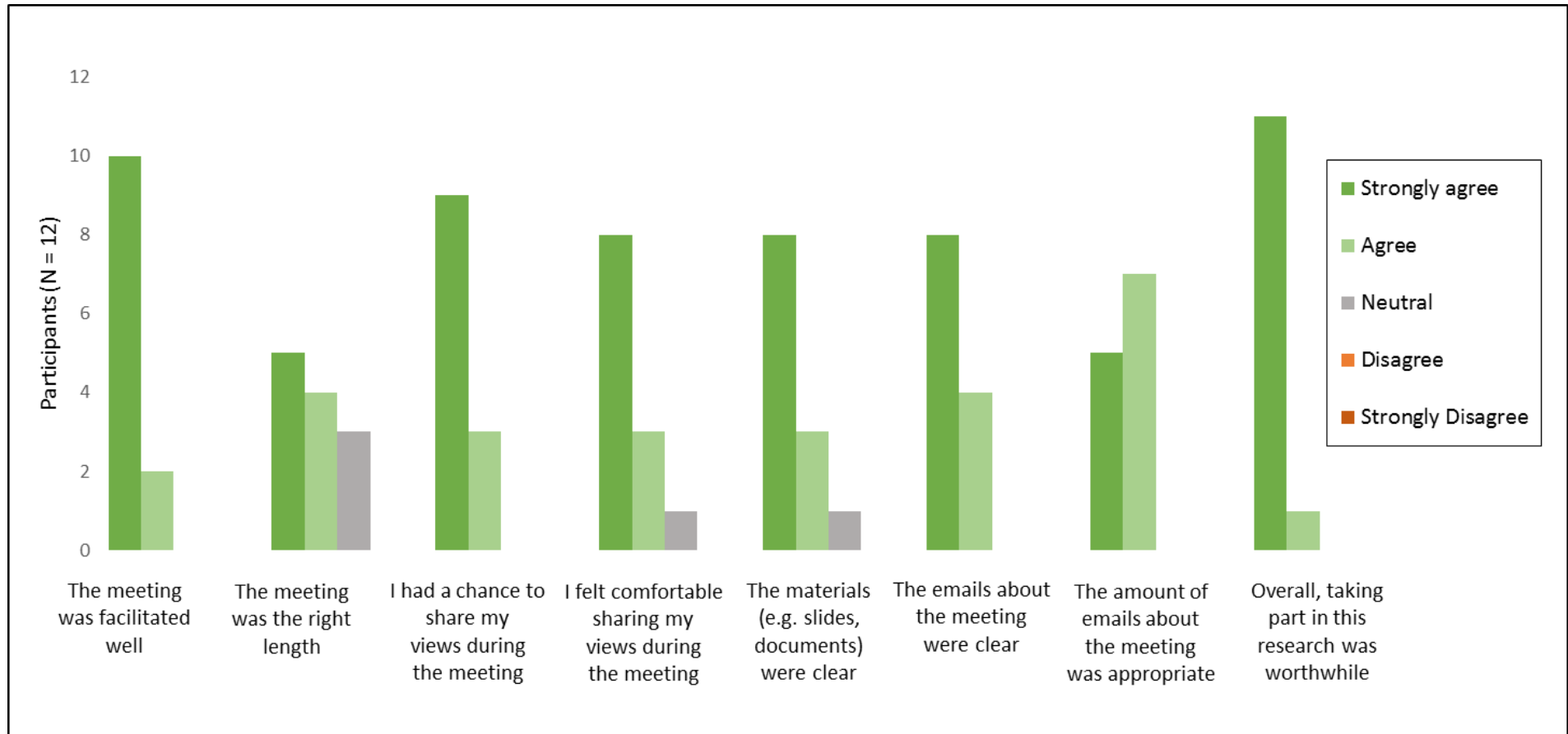Twelve participants provided quantitative feedback on the top ten priorities.
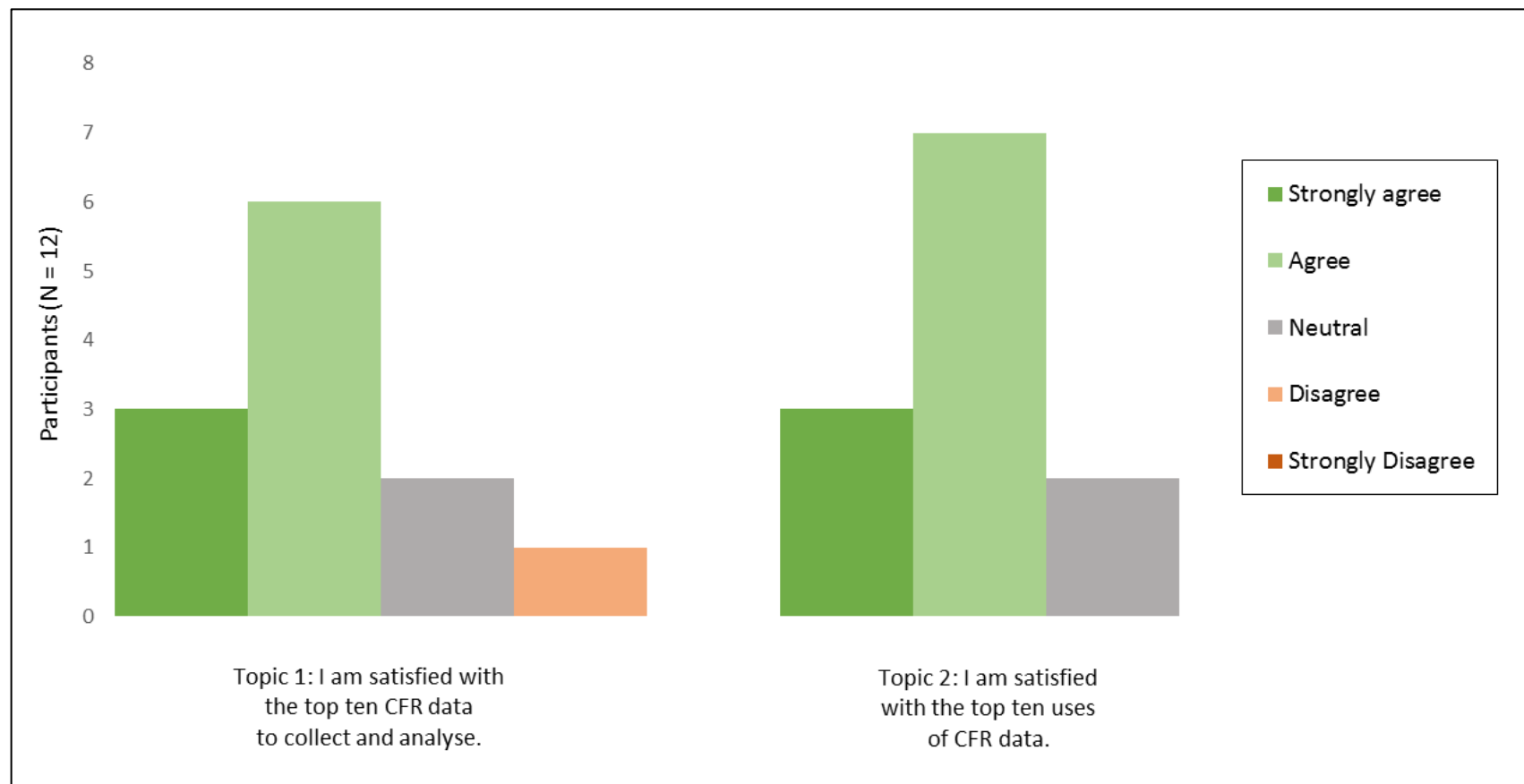
Supplementary Table 8 – Participant Comments on the Top Ten Priorities

Four participants provided qualitative feedback on the top ten priorities.

Index	Comment
1	Education and inter agency training should be prioritised by the ambulance service in order to advance CFR groups.
2	In relation to the community response data to be analysed, 4 [i.e. who first initiated CPR?] and 6 [i.e. who performed CPR at the scene (e.g. bystanders, CFR volunteers)?] are too similar to compare any real differences.
	Also number 9: the time differences between the emergency occurring and emergency services being called. Generally, [in] any emergency a person will immediately call 999.
	I feel number 13 [i.e. what was the outcome of the emergency?] is more…valuable…for us to receive, in terms of the outcome of the patient, as we can evaluate all the data we want but…knowing the outcome of the situation is the only real way we can determine the effectiveness of what we are aiming to do.
	I think number 22 [i.e. did the CFR volunteer notify the emergency services that they were responding to the call?] is also quite important, because if the CFR schemes do not communicate…that they are attending a call, it is important to know why…for their own safety, the purposes of collecting data and…following protocols for the scheme.
	For the uses of Community Response Data, numbers 3 [i.e. to provide evidence about the value of CFR schemes to key stakeholders (e.g. the public, ambulance service)], 4 [i.e. to accurately assess the contribution made by CFR volunteers] and 8 [i.e. to measure the effectiveness of CFR schemes] are similar…and all correlate…By categorising these together, it allows us to add in more uses, and therefore, increasing what our research can tell us.
	Naturally number 19 [i.e. to facilitate research] is the reason we are doing this, and without research we cannot improve or evaluate any scheme, so it is important…
	I think also if we had the data and linked 13 [i.e. to identify locations that require new CFR schemes/to determine the best way to promote CFR schemes in the community] and 25 [i.e. to justify community support given to CFR schemes] together, the data and research can be used to teach the public in the importance of CPR and the Community First Responder schemes.
3	I feel that the data to be collected in [Topic 1] is currently being collected and gives no more insight into community response.
	I thought some of the options in particular in [Topic 2] were very similar and might have been grouped together. However, overall I believe it was a fair and accurate account of everyone's opinions.
4	A liaison officer would be helpful, for both the family and the First Responders. It would be good to keep the First Responder in the loop as to how the person they assisted is progressing. It would be good for the family to have the opportunity to say thank you to the First Responder, post the critical event.

Supplementary Figure 2 – Participant Ratings of the Consensus Meeting

Twelve participants provided quantitative feedback on the consensus meeting.

Supplementary Table 9 – Participant Comments on the Consensus Meeting

Seven participants provided qualitative feedback on the consensus meeting.

Index	Comment
1	Thanks for the opportunity to participate.
2	Thanks to all. It's great that you are undertaking this important piece of research and I wish you the best. The whole session was so well facilitated in a relaxed way…Everyone had the opportunity to partake. Well done.
3	Most "enjoyable" zoom meeting I've had. Very well organised.
4	Follow-on meeting and discussion about potential ways to implement issues discussed might be of benefit.
5	I feel honoured to have being part of this, as it is such valuable information to aid us in strengthening the Chain of Survival, and [see] where improvements can be made and see what is working and not. It is such an important topic, and I look forward to, in time, seeing and assisting in whatever way I can [with] strengthening OHCA responses and CFR schemes. The emails were clear and concise…The meeting was fantastic to meet and hear what other people from different walks of life - but yet all with the same goal - had to suggest. Thank you for doing such important research and for allowing me to participate.
6	It was great to hear the views of others.
7	All was well organised and implemented. Well done all.